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May 9, 2011

U.S. Department of Energy
Building Technologies Program
Appliances and Commercial Equipment Standards Program
1000 Independence Avenue, SW
Washington, DC 20585-0121

Re: "DOE Verification Testing in Support of ENERGYSTAR"

The Ingersoll Rand Residential Solutions business, manufacturer of Trane and American Standard residential air conditioners, heat pumps and furnaces, appreciates the opportunity to offer comments on the proposed program, "DOE Verification Testing in Support of ENERGYSTAR" published on April 22, 2011. Ingersoll Rand has serious concerns about this program in the following areas:

- Unnecessary and costly redundancy
- Program Intent
- Basic Model Definition
- Lab correlation, accuracy, and repeatability

Redundancy

Ingersoll Rand believes that the ratings of covered products should be rigorously enforced whether the ratings are for EnergyStar or for complying to federal minimum efficiency standards of 10 CFR 430. Under the certification/verification program of AHRI and its predecessor organizations ARI and GAMA, these products have been rigorously enforced. In that program, one-third of all basic models are subjected to test each year. Recently, at the request of EPA, this program was adjusted to be sure that 10% of Energy Star basic models are in the samples selected for test each year.

The AHRI program, which predates NAECA, was established over 20 years ago to reinforce the integrity of the performance representations made to consumers by the program participants. Under NAECA, the AHRI program has acted as the virtual verification arm of DOE to assure the integrity of the ratings, and in particular to assure that all products offered in the market meet the NAECA minimum requirements. Subsequently, it has become the certification and verification mechanism for EnergyStar. We believe that the AHRI program has been an effective verification mechanism for the NAECA minima, Energy Star, and the FTC labeling program.

The changes advanced under the Federal Register notice of May 2, 2011 are redundant with the certification and verification program that has been in place for many years. This redundancy will unnecessarily increase costs for the industry and for the government, neither of which has surplus funds. With this new program there would now be at least four enforcement programs for the same products:

1. The AHRI Certification Program
2. The DOE enforcement of NAECA
3. The FTC labeling enforcement
4. Energy Star enforcement

We have to question what benefits there are to having redundant programs, especially in a time of high Federal deficits with the need to reduce spending.

Beyond adding significant expense there are other concerning effects that overlapping federal test programs would create:

- The dilemma of what to do when a given model passes test in one program's laboratory but has a narrow miss in overlapping program's lab.
- The increase in the variability intrinsic with real hardware tested in multiple laboratories that increases the potential for test "failures" due to statistical flukes, as contrasted to exaggerated ratings.

Program Intent

There is concern about the shift in program intent from what has been the relationship between the government and industry in the past. That past relationship could be characterized as cooperating to assure the integrity of the covered products and their ratings employing the resources of the long-standing AHRI Certification Program. The administrative provisions of the program provide strong inducements to the manufacturers to maintain the integrity of their ratings. The provisions described in the DOE enforcement program have a punitive tenor throughout, culminating with the fact that the process leaves no recourse to the manufacturer to dispute an unfavorable finding until the end of the process --- no hearing or appeals until then.

In the AHRI certification program, any manufacturer can challenge the rating of any product in the directory. This will lead to testing of the model in question. If the tests support the rating, then the challenger pays for the tests and the test samples. If the tests do not support the rating, then the manufacturer of the tested equipment pays for the tests and absorbs the cost of the test samples. It now appears that DOE intends to open the challenge opportunity to any individual and that there will be no cost to that individual regardless of the outcome. That opens the door to frivolous and capricious challenges.

Definition of Basic Model

The definition of "basic model" as it is stated to be applied in the enforcement program and further explained in the Final Rule on enforcement published on March 7, 2011 continues to be much narrower than what has been the working definition for decades. This is a matter of massive practical consequence. The difficulty arises due to the fact that the overwhelming majority of residential air conditioners and heat pumps are "split systems" in which an outdoor unit is paired with one of several indoor units. The selection of the indoor unit to mate with an outdoor unit is a matter of "fine tuning" performance specifications and features. For example, the AHRI Directory shows that a typical Trane 3-ton outdoor unit with a base, coil-only rating of 15 SEER has an additional 1067 system combinations with other indoor units that produce system performance ranging from 13.5 SEER up to 16.0 SEER.

Ingersoll Rand urges DOE to reconsider the basic model definition for split system air conditioners and heat pumps and adopt the AHRI basic model group definition.

A system basic model group (BMG) consists of products with the same outdoor unit used with several indoor coil combinations (i.e. horizontal, vertical, A-coil, etc.). Same "outdoor unit" refers to models with the same or comparable compressor, used with the same outdoor coil surface area and the same outdoor air quantity.

This is needed to avoid creating an unnecessary regulatory burden which would result in increased product costs.

Lab Correlation, Accuracy, and Repeatability

Air conditioners, heat pumps and furnaces are functionally complex as evidenced by the complexity of the testing and analysis procedures in 10 CFR 430. There are numerous technical details that a laboratory unfamiliar with the operation and testing of HVAC equipment might well miss, leading to test failures of fully compliant units. One small example is the sensitivity of measurements, data reduction, and calculations to barometric pressure including the effect of the altitude of the testing laboratory. Another is the effect of psychometric room wet bulb control on testing accuracy and repeatability.

This is particularly troubling since DOE appears to be relying on using any ISO-17025 certified laboratory. That is not sufficient since compliance with ISO-17025 only requires that the laboratory has processes in place to carry out certain test protocols. It does not insure that a lab is either accurate or repeatable. Furthermore, since ISO-17025 deals largely with laboratory management, it does not address the technical skills needed to install and operate complex equipment, much less to know when test data is valid or in error. This will inevitably lead to some false indications of failure. This is particularly troubling since DOE offers little recourse to manufacturers to challenge a failure penalty until far too late in the process.

Ingersoll Rand believes that DOE needs to reconsider this testing program and eliminate the unnecessary duplication of effort and spending that this program would create.

Please feel free to call me, if you have questions.

Respectfully,

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